

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow. Applicant thanks the Examiner for entering the amendments filed on July 27, 2001 and November 5, 2001, and for continuing examination of the pending application. Claims 1, 2, and 4-6 were pending in the application. Claims 7-10 have been added. No new matter has been introduced. Thus, claims 1, 2, and 4-10 are submitted for reconsideration at this time.

The claimed invention is directed at an optical symbol reading device for reading symbols on the front and back surfaces of an article moved by, for example, a conveyor (page 1, lines 6-10 of the original disclosure). Claim 1 recites structure for *continuously adjusting the focus* of an optical reading in order to read the symbols while the article is being conveyed to reduce blurring (page 7, lines 12-24 of the original disclosure). The claimed invention enables matching of the focus point to the front surface/back surface of an article even in the case of reading the front surface/back surface of an article for which the reading distance is *changing over time* (page 14, lines 15-19 of the original disclosure).

Claim 1

Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,525,788 ("Bridgelall" hereafter) in view of Japanese Reference JP 3-1285 ("Inagaki" hereafter) and U.S. Patent No. 5,436,439 ("Nishimura" hereafter). Applicant respectfully traverses the rejection for the following reasons.

The Cited Art Does Not Teach Every Claim Limitation

Applicant submits that Bridgelall fails to disclose or suggest continuously focusing the scanning beams by calculating the distance between the scanner and the surface being scanned as recited in claims 1 and 7. More specifically, Bridgelall teaches rescanning the barcode only if it is invalid, and then adjusting the optimum focus (col. 4, lines 64-65). The Office Action failed to entertain this distinction, stating "it is noted that Applicant's claim calls for '... continuously detecting a position on said conveyor . . .', (see claim 1, lines 10-11)." Applicant has amended claim 1 to explicitly recite the intended limitation, and respectfully requests that the Examiner reconsider this distinction over the cited art.

Lack Of Motivation To Combine References

Bridgelall

Bridgelall teaches a system for scanning bar code symbols on moving articles, including a sensor for sensing the presence of an article at a predetermined location (col. 4, lines 35-37). Bridgelall then records an image of the article to determine a location of a bar code symbol on the article (col. 4, lines 37-42). Feedback signals are generated which may include symbol density, range, location and orientation (col. 6, line 33). The feedback signals are then used to control light beam pattern generation and scanner adjustments (col. 6, lines 33-37). The bar code is rescanned if it comes back invalid (col. 4, lines 64-65).

Applicant submits, however, that the entire process of Bridgelall is based on using an X/Y scanner 40 (col. 6, lines 19-20) to approximate the range, location and orientation (col. 6, line 33) of the bar code. These parameters allow Bridgelall to alter the pattern in which the light beam is generated by scanner 40 and directed at symbol 50 (col. 6, lines 55-56). Thus, one of ordinary skill in the art would not look to add a trailing edge detector (i.e., a non-X/Y scanner) of Nishimura, because it would eviscerate the very benefits Bridgelall seeks to obtain by using an X/Y scanner. See MPEP §2143.01 ("The proposed modification cannot render the prior art unsatisfactory for its intended purpose.").

The Office Action acknowledges that Bridgelall fails to disclose or suggest the image data input section including a front symbol reading device and back surface symbol reading device as recited in claim 1. The Office Action further acknowledges that Bridgelall fails to disclose or suggest a front surface/back surface position detector for continuously detecting a position on the conveyor of both a front surface and a back surface of an article that is moved by the conveyor as recited in claim 1. The Office Action cites Nishimura and Inagaki as allegedly providing these missing features.

Nishimura and Inagaki

The Office Action asserts that "[i]n view of Inagaki's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Bridgelall et al, the image data input section including a front surface symbol reading device and back surface symbol reading device . . . in order to provide a system where a bar code can be read irrespective of an arranged position of a[n] article." The Office Action further asserts that "[i]n view of Nishimura

et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system, as taught by Bridgelall et al as modified by Inagaki, to include a front surface/back surface position detector for continuously detecting a position on the conveyor of both a front surface and a back surface of an article that is moved by the conveyor." Applicant respectfully disagrees.

Applicant again submits that one of ordinary skill in the art would not look to combine the references, because it would eviscerate the very benefits Bridgelall seeks to obtain by using an X/Y scanner. Even if the references were combined, Applicant can find no motivation in Bridgelall, Nishimura, or Inagaki to modify Bridgelall in such a way as to continuously focus the scanning beams by calculating the distance between the scanner and the surface being scanned via detecting the leading and trailing edges of the conveyed article. Hence, Applicant submits that claim 1 is in a condition for allowance, and solicits early notification of the same.

Claims 2, and 4-6

Claims 2, and 4-6 are dependent upon claim 1 and, therefore, are considered allowable for at least the aforementioned reasons with respect to claim 1, without regard to the further patentable limitations contained therein. Allowance of claims 2, and 4-6 is earnestly solicited.

New Claims 7-10

New claims 7-10 have been added to more clearly recite features of the present invention. Support for new claims 7-10 can be found, for example, in original claim 1 and on page 9, line 8-page 14, line 9 of the original disclosure. Applicant submits that the cited art fails to disclose or suggest continuously adjusting the focus of an optical symbol reader based on the calculated distance as recited in new claim 7, and as similarly argued above with respect to claim 1. Claims 8-10 are dependent upon claim 7 and, therefore, are considered allowable for at least the aforementioned reasons with respect to claim 7, without regard to the further patentable limitations contained therein. Allowance of claims 7-10 is earnestly solicited.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

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By



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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge deposit account No. 19-0741 for any such fees; and applicant hereby petitions for any needed extension of time.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. (Thrice Amended) An optical symbol reading device comprising:

an image data input section including a front surface symbol reading device and back surface symbol reading device, an image data input unit for receiving a bar code label, characters, symbols, or image data on an article that is moved by a conveyor, and an image data input focus point modifier;

an article detector for detecting that said article has entered a read zone;

an interpreter for converting electric signals from said image data input section to numbers or characters; an interpretation result output section for outputting the interpretation results of said interpreter to an external device;

a front surface/back surface position detector for continuously detecting a position on said conveyor of both a front surface and a back surface of an article that is moved by said conveyor[,]; and

an image data input focus point control section for outputting data from said front surface/back surface position detector to said image data input focus point modifier, said image data input focus point modifier continuously adjusting the focus point based on said data from said front surface/back surface position detector.